

WHAT IS CLAIMED IS:

1. An image processing apparatus for outputting a page image corresponding to print data inputted from an outside, comprising:

5       analyzing means for analyzing said print data at the time of outputting a first copy and generating a page image;

      image spooling means for holding said page image at the time of outputting the first copy;

10      page image reading means for reading out said spooled page image at the time of outputting second and subsequent copies;

      mechanical sorting means for performing mechanical sorting and paper ejection every copy;

15      discriminating means for discriminating whether said mechanical sorting means can be used or not and discriminating the maximum number of sorting page images which can be processed at once by said mechanical sorting means; and

20      switching means for, when a plural copy print is designated, discriminating whether said image spooling means and said page image reading means are used or not in accordance with a discrimination result of said discriminating means and the designated number of

25      copies.

2. An apparatus according to claim 1, wherein in

the case where it is determined by said discriminating means that said mechanical sorting means cannot be used or in the case where a print of the number of copies larger than the maximum number of sorting page images which can be processed at once by said mechanical sorting means is designated, said switching means allows the plural copy print to be executed by using said image spooling means and said page image reading means.

10

3. An apparatus according to claim 2, wherein when a paper ejection mode is not a continuous sort, even if the print of the number of copies which is equal to or smaller than the maximum number of sorting page images which can be processed at once by said mechanical sorting means is designated, said switching means uses said image spooling means and said page image reading means.

20 4. An apparatus according to claim 1, further comprising:

print data spooling means for holding said print data as much as at least one job; and  
print data reading means for reading out said print data stored in said print data spooling means a predetermined number of times,  
and wherein when said image spooling means and

said page image reading means are not used, said plural copy print is performed by using said print data reading means.

5       5. An apparatus according to claim 4, wherein in the case where said mechanical sorting means can be used, said print data reading means reads out the print data each time the page images of the maximum number of sorting page images which can be processed at once by 10       said mechanical sorting means are outputted.

6. An apparatus according to claim 1, wherein said image spooling means holds the page images compressed in a predetermined format.

15       7. An apparatus according to claim 1, wherein said page image is a set of image data obtained by dividing one page into a plurality of band-like images or image data as much as one page.

20       8. An apparatus according to claim 1, wherein said page image reading means outputs the page image compressed by a predetermined format while decompressing it.

25       9. An image processing method of outputting a page image corresponding to print data inputted from an

outside, comprising:

an analyzing step of analyzing said print data at the time of outputting a first copy and generating a page image;

5 an image spool step of holding said page image at  
the time of outputting the first copy;

a page image reading step of reading out said spooled page image at the time of outputting second and subsequent copies;

10 a discriminating step of discriminating the  
maximum number of sorting page images which can be  
processed at once by mechanical sorting means for  
performing a mechanical sort paper ejection every copy;  
and

15 a determining step of determining whether said page image reading step is executed or not in accordance with a discrimination result in said discriminating step and the designated number of print copies.

20

10. A program storage medium which stores a program for executing an image processing method of outputting a page image corresponding to print data inputted from an outside, wherein said program comprises:

25 a code for executing an analyzing step of  
analyzing said print data at the time of outputting a  
first copy and generating a page image;

a code for executing an image spool step of holding said page image at the time of outputting the first copy;

5 a code for executing a page image reading step of reading out said spooled page image at the time of outputting second and subsequent copies;

10 a code for executing a discriminating step of discriminating the maximum number of sorting page images which can be processed at once by mechanical sorting means for performing a mechanical sort paper ejection every copy; and

15 a code for executing a determining step of determining whether said page image reading step is executed or not in accordance with a discrimination result in said discriminating step and the designated number of print copies.

20 11. An image processing apparatus connected to an information processing apparatus and an image forming apparatus, comprising:

receiving means for receiving print data from said information processing apparatus;

25 generating means for generating page image data on the basis of the print data received by said receiving means;

holding means for holding the page image data generated by said generating means into an image

memory;

obtaining means for obtaining information indicative of a paper ejection ability of said image forming apparatus;

5           output means for outputting the page image data generated by said generating means to said image forming apparatus; and

control means for, when a plurality of copies of said page image data are outputted to said image forming apparatus by said output means, selecting either a first output mode or a second output mode on the basis of copy No. information of the print data to be outputted and the information obtained by said obtaining means,

15           wherein in said first output mode, a process for outputting all pages of a first copy of the print data to a first paper ejection bin of said image forming apparatus and holding the generated page image data by said holding means is executed and, thereafter, said held page image data is read out and second and subsequent copies of the print data are outputted to said first paper ejection bin or a paper ejection bin other than said first paper ejection bin, and

25           in said second output mode, a process for sorting the page image data generated by said generating means every page in accordance with a plurality of paper ejection bins possessed by said image forming apparatus

and outputting said page image data is executed the number of times as many as the number of pages to be outputted.

5        12. An apparatus according to claim 11, wherein the information obtained by said obtaining means includes information indicative of the number of usable paper ejection bins possessed by said image forming apparatus.

10       13. An apparatus according to claim 12, wherein said control means selects said second output mode when the number of copies of the print data to be outputted is equal to or smaller than said number of usable paper ejection bins.

15       14. An apparatus according to claim 12, wherein said control means selects said first output mode when the number of copies of the print data to be outputted is larger than said number of usable paper ejection bins.

20       15. An apparatus according to claim 11, wherein said control means executes the process for selecting either said first output mode or said second output mode on a print job unit basis.

16. An image processing method of outputting print data received from an information processing apparatus to an image forming apparatus, comprising:

5        a generating step of generating page image data on the basis of the print data received from said information processing apparatus;

10      a holding step of holding the page image data generated by said generating step into an image memory;

15      an obtaining step of obtaining information indicative of a paper ejection ability of said image forming apparatus;

20      an outputting step of outputting the page image data generated by said generating step to said image forming apparatus; and

25      a control step of, when a plurality of copies of said page image data are outputted to said image forming apparatus by said outputting step, selecting either a first output mode or a second output mode on the basis of copy No. information of the print data to be outputted and the information obtained by said obtaining step,

30      wherein in said first output mode, a process for outputting all pages of a first copy of the print data to a first paper ejection bin of said image forming apparatus and holding the generated page image data by said holding step is executed and, thereafter, said held page image data is read out and second and

subsequent copies of the print data are outputted to said first paper ejection bin or a paper ejection bin other than said first paper ejection bin, and

5       in said second output mode, a process for sorting the page image data generated by said generating step every page in accordance with a plurality of paper ejection bins possessed by said image forming apparatus and outputting said page image data is executed the number of times as many as the number of pages to be 10      outputted.

17. A method according to claim 16, wherein the information obtained by said obtaining step includes information indicative of the number of usable paper ejection bins possessed by said image forming apparatus. 15

18. A method according to claim 17, wherein in said control step, said second output mode is selected when 20 the number of copies of the print data to be outputted is equal to or smaller than said number of usable paper ejection bins.

19. A method according to claim 17, wherein in said 25 control step, said first output mode is selected when the number of copies of the print data to be outputted is larger than said number of usable paper ejection

bins.

20. A method according to claim 16, wherein in said control step, the process for selecting either said 5 first output mode or said second output mode is executed on a print job unit basis.

21. A computer program for an image processing method of outputting print data received from a 10 processing apparatus to an image forming apparatus, comprising:

a generating step of generating page image data on the basis of the print data received from said information processing apparatus;

15 a holding step of holding the page image data generated by said generating step into an image memory;

an obtaining step of obtaining information indicative of a paper ejection ability of said image forming apparatus;

20 an outputting step of outputting the page image data generated by said generating step to said image forming apparatus; and

a control step of, when a plurality of copies of said page image data are outputted to said image forming apparatus by said outputting step, selecting either a first output mode or a second output mode on 25 the basis of copy No. information of the print data to

be outputted and the information obtained by said obtaining step,

wherein in said first output mode, a process for outputting all pages of a first copy of the print data 5 to a first paper ejection bin of said image forming apparatus and holding the generated page image data by said holding step is executed and, thereafter, said held page image data is read out and second and subsequent copies of the print data are outputted to 10 said first paper ejection bin or a paper ejection bin other than said first paper ejection bin, and

in said second output mode, a process for sorting the page image data generated by said generating step every page in accordance with a plurality of paper 15 ejection bins possessed by said image forming apparatus and outputting said page image data is executed the number of times as many as the number of pages to be outputted.

20 22. A computer-readable memory which stores a computer program according to claim 21.